



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,766	06/06/2006	Yong Hwan Kim	930086-2028	8494

7590 02/27/2009
Ronald R. Santucci
c/o Frommer Lawrence & Haug
745 Fifth Avenue
New York, NY 10151

EXAMINER

HEINCER, LIAM J

ART UNIT	PAPER NUMBER
----------	--------------

1796

MAIL DATE	DELIVERY MODE
-----------	---------------

02/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,766	Applicant(s) KIM ET AL.	
	Examiner Liam J. Heincer	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 12, 2009 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gijutsu et al. (JP 11-323258) in view of Sjøholm et al. (US Pat. 5,948,661). Note: A machine translation is being used for JP 11-323258.

Art Unit: 1796

Considering Claims 1, 3, and 15: Gijutsu et al. teaches a process for preparing a phenolic polymer (¶0006) via polymerization of phenolic monomers (¶0005) having unsaturated aliphatic chains (¶0005) in the presence of peroxidase biocatalyst (¶0006) and an oxidant (¶0009).

Gijutsu et al. does not teach the polymerization as using a phenothiazine derivative. However, Sjøholm et al. teaches using phenothiazine-10-propionic acid in a peroxidase enzyme system (4:6-13). Gijutsu et al. and Sjøholm et al. are combinable as they are concerned with the same technical difficulty, namely increasing the oxidative properties of a peroxide through the use of peroxidase enzyme catalysts. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used the phenothiazine of Sjøholm et al. in the method of Gijutsu et al., and the motivation to do so would have been, as Sjøholm et al. suggests, to increase the oxidative properties of the peroxide, thereby increasing the effectiveness of the catalyst (4:1-15).

Considering Claim 2: Gijutsu et al. does not teach the phenothiazine derivative as being present in a concentration of 20-100 μM . However, Sjøholm et al. teaches the phenothiazine as being present in a concentration of 20-100 μM (4:13-15). It would have been obvious to have used the phenothiazine derivative in the amount prescribed in Sjøholm et al. in the method Gijutsu et al., and the motivation to do so would have been, as Sjøholm et al. suggests, this amount will enhance the effects of the peroxidase (4:1-5).

Considering Claims 4 and 16: Gijutsu et al. teaches the phenolic monomer as being a plant phenolic oil (¶0005).

Considering Claim 5: Gijutsu et al. teaches the peroxidase as being of plant or fungus origin (¶0007).

Considering Claim 6: Gijutsu et al. teaches the oxidant as being hydrogen peroxide or hydroalkyl peroxide (¶0009).

Considering Claims 7 and 9-13: Gijutsu et al. teaches a hardened/cured phenolic resin (¶0016).

Art Unit: 1796

Considering Claim 8: Gijutsu et al. teaches a coating material comprising the resin (¶0001).

Considering claims 14 and 17: Gijutsu et al. teaches the peroxidase as being horseradish or soybean peroxidase (¶0007).

Response to Arguments

Applicant's arguments filed January 12, 2009 have been fully considered but they are not persuasive, because:

A) Objective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value includes evidence of unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. See, for example, *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984) ("It is well settled that unexpected results must be established by factual evidence." See MPEP § 716.01(c).

The evidence submitted in the response is currently only in the form of attorney argument. Should a declaration containing the presented data be submitted, the evidence appears to be sufficient to establish the unexpected results of the applicants invention. While the prior art of record, namely Sjøholm et al., teaches that the claimed mediators increase the oxidative ability of peroxidases, the evidence shows the claimed mediators to have an unexpectedly superior increase in yield in the claimed system. Several other known mediators have been shown to have little to no effect on the yield of the polymer (table 3, applicants arguments pg. 5), while ethylphenothiazine and phenothiazin-10-propionic acid show large increases in the yield of the polymer in the claimed process.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

Art Unit: 1796

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/

Supervisory Patent Examiner, Art Unit 1796

LJH

February 19, 2009